

Association of Bay Area Governments Local Hazard Mitigation Plan

City of Belvedere *Annex*

Introduction

The City of Belvedere is small village-like community located adjacent to the San Francisco Bay in southern Marin County. The community has a population of 2125, based on the 2000 census.¹ The City has a 2004-2005 budget of \$7.59 million and has 21 employees. Belvedere provides its own police services. The Tiburon Fire District provides fire services, however.

The Planning Process

Belvedere City staff is familiar with the planning process involved with the preparation of this document as it's not too dissimilar to general plan preparation and updating, though the City's general plan was last updated in 1994. However, Belvedere's General plan includes an Environmental Hazards Element which includes discussions regarding fire, earthquake, flooding and landslide hazards. Moreover, the City regularly enforces the requirements of the California Environmental Quality Act (CEQA), which, since 1988, mandates the mitigation of identified natural hazards.

In this regards, Belvedere has focused on building on these pre-existing programs, while noting where unintentional gaps in the programs may contribute to the City's vulnerability from the occurrence of a natural disaster. Obviously, those identified gaps have been well considered and mitigation efforts have either been undertaken or are under study.

Some of the activities conducted by the City were fed into the planning process for the multi-jurisdictional plan. The City of Belvedere participated in various Association of Bay Area Governments (ABAG) workshops and meetings, including the general "kick-off" meeting. In addition, Belvedere has provided written and oral comments on the multi-jurisdictional plan. Finally, when appropriate, the City provided information on facilities that are viewed as being "critical" to ABAG.

A number of senior City staff members have met on different occasions to identify and prioritize mitigation strategies which are appropriate for Belvedere. Key staff members involved in the meetings included the City Manager, Planning Manager, Building Official, Public Works Superintendent, City Engineer, Police Chief and the Tiburon Fire District Fire Marshal. During those meetings mitigation priorities were identified, along with the appropriate department responsible for the planning and eventual mitigation

¹ For complete Belvedere census information see <http://www.bayareacensus.ca.gov/>.

oversight. Because of the City's small size and proactive mitigation efforts, only one "High Priority" item was identified.

The City provided the opportunity for the public to comment on the draft mitigation strategies at the City Council meeting of February 6, 2005. Subsequent to that meeting, the resolution for the adoption of the strategies was approved by the City Council on June 7, 2006. The mitigation strategies will become an implementation appendix to this Safety Element.

Hazard and Risk Assessment

The City's hazards and risks are generally consistent with those identified in the ABAG multi-jurisdictional Local Hazard Mitigation Plan (LHMP), to which this is an Annex, except as described below.

The City has not undertaken hazard-mapping activities because of its small size, general lack of hazards and because of a proactive approach regarding the most prominent potential hazard—flooding at the Lagoon—since its General Plan was prepared. Consequently, Belvedere depends on those maps prepared by ABAG and shown on their website at <http://quake.abag.ca.gov/mitigation/>. The City's General Plan does, however, under the Environmental Hazard Element, indicate slope stability as an environmental hazard.

Over the years Belvedere has experienced several minor landslides, one occurring in 1998 when a roadside embankment failed and another in December 2005 at a private residence, each causing some damage to private property. Because staff does consider landslides a potential hazard of some significance in our community, the subject was discussed during the February 6, 2006 Council presentation.

Historical information regarding declared disasters in Belvedere can be found by researching declared disasters in Marin County at <http://quake.abag.ca.gov/mitigations/disaster-history.html>.

The City of Belvedere examined the hazard exposure of the City's urban land based on information found on ABAG's website, which is located at <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the less than one square mile (only 312 acres) of urban area in Belvedere,

- Earthquake faulting – No active faults run within the City of Belvedere so rupture of a fault is not a direct concern.
- Earthquake shaking – From a general risk stand point, approximately 300 – 350 residential properties (in 43 acres) within the City have a shaking potential of *Violent to Very Strong* according to the ABAG Shaking Intensity Map due to certain soil conditions and relative proximity to the Northern San Andreas & the North Hayward/Rogers Creek faults.
- Earthquake-induced landslides – The California Geological Survey (CGS) has not completed mapping of this hazard in the City of Belvedere other than an interpretive description based aerial photographs. Because no areas have been mapped as landslides, other than the aerial photographic interpretations, this hazard is viewed as similar to that posed by weather-related hazards.

- Earthquake liquefaction – From a general risk stand point, approximately 200-250 residential properties (89 acres) within the City have a *Very High, High, or Moderate* liquefaction susceptibility, per the ABAG liquefaction map.
- Tsunamis – While tsunamis may be a hazard in the City of Belvedere, the mapping of the inundation area has not been completed at this time.
- Flooding – Approximately 44 residential properties (87 acres) are located in the 100 year flood zone (A-1). These properties are listed in the flood zone by virtue of the fact that they are built over San Francisco Bay waters, supported on piers. However, none have experienced flooding, nor does the City expect a flood event that would affect the properties.
Approximately another 110 properties (21 acres) are listed in the 100/500-year flood zone (B) because of their proximity to the Belvedere Lagoon. Though the City experienced minor flooding in some of the area in 1982, that hazard was largely eliminated by a drainage diversion project in 2000/2001, funded by a FEMA disaster mitigation grant.
The City currently has a letter of Map Amendment (LOMA) pending with FEMA requesting the removal of two residential properties from the 100-year flood zone.
- Landslides – The City's General Plan mentions landslides as being a potential hazard. The USGS landslide hazard map indicates 50 urban acres are largely underlain by landslides.
- Wildfires – No areas within Belvedere City limits are subject to high, very high or extreme wildfire threats because of the urban nature of the City. Only 33 acres are in wildland-urban-interface areas.
- Dam inundation – This is not an applicable danger to the City because of its geographical location.
- Drought – Drought, though a potential problem in the City of Belvedere, is not fully assessed. The City will be working with ABAG and the various water supply agencies on this issue.

The City also examined the hazard exposure of infrastructure based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the 12.5 miles of roadway in the City,

- Earthquake faulting – No active faults run within the City so rupture of a fault is not a direct concern.
- Earthquake shaking – Approximately one mile of roadway are within the top two & three highest categories of shaking potential.
- Earthquake-induced landslides – The California Geological Survey has not completed mapping of this hazard in the City of Belvedere. However, this is unlikely to be an issue because no City roads are in existing landslide areas.
- Earthquake liquefaction – Approximately four miles of roadway is in an area of moderate susceptibility to earthquake-induced liquefaction.
- Tsunamis – While tsunamis may be a hazard in the City of Belvedere, the mapping of the inundation zone has not been completed at this time.
- Flooding – No roads are in area susceptible to flooding, excepting approximately 500 yards of San Rafael Avenue, adjacent to the San Francisco Bay rip rap embankment. (The less current map on the ABAG website indicates that approximately 3 miles of roadway are in the flood zone.)

- Landslides – Three miles of roads are in an area susceptible to landslides.
- Wildfire – No roads are in area of high-to-extreme wildfire threat. However, one mile of roadway is in an wildland-urban-interface area.
- Dam Inundation – No roads are in an area susceptible to dam inundation.
- Drought – Drought is not a hazard for roadways.

Finally, the City of Belvedere examined the hazard exposure of critical health care facilities, schools and city owned building based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickcrit.html>. Of the critical facilities within the City,

- Earthquake faulting – No active faults run within the City so fault rupture is not a direct concern. Additionally, the City's administrative and police facilities are contained in a building structurally designed, per the California Building Code, as an essential services facility. Moreover, the City of Belvedere does not currently contain any critical care facilities such as licensed hospitals, long-term care facilities, clinics, home health agencies, hospices, nor does the City contain any schools.
- Earthquake shaking – No active faults run within the City so fault rupture is not a direct concern. Additionally, the City's administrative and police facilities are contained in a building structurally designed, per the California Building Code, as an essential services facility. Additionally, no critical health care facilities or schools are in an area subject to earthquake shaking.
- Earthquake landslides – No critical health care facilities, schools, or City-owned facilities are in an area subject to liquefaction.
- Earthquake liquefaction – No critical health care facilities or schools, or City-owned facilities are in an area subject to liquefaction. While some City-owned facilities are in an area subject to liquefaction, none are critically significant at this time.
- Tsunamis – While tsunamis may be a hazard in the City of Belvedere, not mapping of the inundation zone has been completed at this time. Moreover, the City of Belvedere does not currently contain any critical care facilities such as licensed hospitals, long-term care facilities, clinics, home health agencies, hospices, nor does the City contain any schools.
- Flooding – No critical health care facilities, schools, or City-owned facilities are in an area subject to flooding.
- Landslides – No critical health care facilities or schools, or City-owned facilities are in an area subject to landslides.
- Wildfires – No critical health care facilities or schools. However, four City-owned facilities are in an area subject to wildland-urban-interface.
- Dam inundation – No critical health care facilities, schools, or City-owned facilities are in an area subject to dam inundation.
- Drought – Drought will not affect City buildings directly, Moreover, the City of Belvedere does not currently contain any licensed hospitals, long-term care facilities, clinics, home health agencies, hospices or schools.

In spite of the areas of the City located in the 100-year flood zone, there are no repetitive loss properties within the City of Belvedere, based on information at <http://quake.abag.ca.gov/mitigation/pickflood.html>.

The City plans to work with ABAG during 2006 to improve the risk assessment information being compiled by ABAG. However, the City of Belvedere does not contain any unreinforced masonry and has identified two, possibly three, soft-story apartment buildings within the jurisdiction.

Drought, though it is a remote possibility for the potential problem in the City, it is not fully assessed at this time. However, the City will work with ABAG and the local water supplier, Marin Municipal Water District (MMWD) on this issue.

The City plans to work with ABAG to develop specific information about the kind and level of damage to buildings, infrastructure and critical facilities which might result from any of the hazards previously noted. The ABAG Annex states that ABAG will be doing this work in 2005 through early 2006.

As these impacts are not fully developed, the City has reviewed the hazards identified and ranked the hazards based on past disasters and expected future impacts. The conclusion is that earthquakes—particularly shaking—poses the most significant risk for potential loss in Belvedere.

Mitigation Activities and Priorities

As a participant in the ABAG multi-jurisdictional planning process, the City of Belvedere staff helped in the development and review of the comprehensive lists of mitigation strategies in the overall multi-jurisdictional plan.

Regarding the City of Belvedere's mitigation strategies, the list was discussed at individual meetings in December 2005 and January 2006 with the City Police Chief, Building Official, Public Works Director, Planning Manager, Superintendent of Public Works, Fire Chief, Fire Marshal and City Manager. At the meetings all of the mitigation strategies were reviewed. Belvedere's decision regarding priorities, similar to the ABAG Plan, was made based on a variety of criteria, not simply on an economic cost-benefit analysis. These criteria include being technically and administratively feasible, politically acceptable, socially appropriate, legal, economically sound and not harmful to the environment or our heritage.

Over time, we are committed to developing better hazard and risk information to use in making those trade-offs. We are not trying to create a disaster-proof region, but rather a disaster-resistant one. In addition, several of the strategies are existing City or regional programs.

These draft priorities were submitted to the City Manager for review. The draft priorities were then provided to the City Council on February 6, 2006. The public was provided with an opportunity to comment on the Draft priorities during a 30-day public comment period, beginning with the February 6th Council meeting, including a second Council meeting on March 6th and concluding on March 7, 2006. The final strategies, as indicated in the attached table, will become an Implementation Appendix to the City's Environmental Element.

The Plan Maintenance and Update Process

The City Manager will ensure that monitoring of this Annex will occur. The plan will be monitored on an on-going basis. However, the major disasters affecting our community, legal changes, notices from ABAG as the lead agency in this process and other triggers will also be used. Finally, the Annex will be a discussion item on the agenda of the meeting of City senior staff members at least once a year in April. At this meeting, the senior staff members will focus on evaluating the Annex in light of technological and political changes during the past year or other significant events. This group will be responsible for determining if the plan should be updated.

The City of Belvedere is committed to reviewing and updating this Plan Annex at least every five years, as required by the Disaster Mitigation Act of 2000. The City Manager will contact ABAG four years after this plan is approved to ensure that ABAG plans to undertake the plan update process. If so, the City will again participate in the multi-jurisdictional plan. If ABAG is unwilling or unable to act as the lead agency in the multi-jurisdictional effort, other agencies will be contacted, including Marin County Office of Emergency Services. Area counties should then be encouraged to work together to identify another regional forum for developing a multi-jurisdictional plan. In either case the City of Belvedere is committed to updating its Plan every five years.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates the City will provide the opportunity for the public to comment on the updates. A public notice will be posted prior to the meeting to announce the comment period and meeting logistics.

City of Belvedere

Local Hazard Mitigation Strategy

Priorities

Priority Ranking	Mitigation Project	Responsible Department or Agency	Estimated Project Cost	Completion Date
1	Fund study & possible repair to elevation of rip rap at Bay, adjacent to San Rafael Avenue	City Engineer	\$100,000	Late 2007
2	Update Tiburon Peninsula Joint Disaster Plan	City Manager, Joint Disaster Council & Town of Tiburon	\$15,000	Early 2007
3	Educational & training outreach to community regarding disaster preparedness awareness, personal awareness & flood insurance	City Manager & Joint Disaster Council	\$1,000	Ongoing, using City newsletter, website, e-network & community organizations
4	Update staff training under SEMs & other applicable disaster response training programs	City Manager	\$2,500	Ongoing
5	Develop recommendations based on future California or US Geological landslide & tsunami mapping & studies	City Engineer	Unknown	Unknown
6	Implement recommendations based on future California or US Geological landslide & tsunami mapping & studies	City Engineer	Unknown	Unknown